

## REMARKS

Favorable reconsideration of this application is respectfully requested in view of the previous amendments and following remarks.

Before turning to the prior art rejections, a brief discussion of an embodiment of a catheter disclosed in this application. A catheter 1 includes a proximal shaft 15, an intermediate member 14 connected to a front side of the proximal shaft 15, a distal shaft 13 connected to a front portion of the intermediate member 14, a balloon 12 connected at a front portion of the distal shaft 13, and a guide wire lumen 11 for allowing a guide wire to be inserted therethrough. The guide wire lumen 11 includes a distal side aperture 111 positioned on the distal side from a front end of the balloon 12 and a proximal side aperture 141 formed in a side surface of the intermediate member 14. The front portion of the distal shaft 13, positioned on the rear side from the balloon 12, is configured as a grooved portion 131 having a groove 132. The grooved portion 131 has a distal end located near a connection portion between the balloon 12 and the distal shaft 13 and a proximal end located toward a distal side of the proximal side aperture 141.

Turning now to the claims, Claim 1 is rejected as being unpatentable over Wijeratne in view of Berg.

As amended, Claim 1 recites a catheter including a proximal shaft, an intermediate member connected to a front side of the proximal shaft, a distal shaft connected to a front portion of the intermediate member, a balloon connected at a front portion of the distal shaft, and a guide wire lumen for allowing a guide wire to be inserted through the guide wire lumen. The guide wire lumen includes a distal side aperture positioned on the distal side from a front end of the balloon and a proximal

side aperture formed in a side surface of the intermediate member. The front portion, positioned on the rear side from the balloon, of the distal shaft is configured as a grooved portion having a groove. The grooved portion has a distal end located near a connection portion between the balloon and the distal shaft, and a proximal end located toward a distal side of the proximal side aperture.

The Official Action takes the position that Wijeratne's transition tube 32 comprises a proximal shaft, the outer body tube 22 comprises a distal shaft, the distal tip 25 comprises a distal side aperture, and the guidewire port 26 comprises a proximal side aperture. The Official Action further states that it would have been obvious to an ordinarily skilled artisan in view of Berg employ a grooved portion in Wijeratne's outer body tube 22. Applicants disagree with this modification.

Berg discloses a catheter wherein the portion of the catheter which attaches the distal section to the hub 52, i.e., the shaft 56, has a grooved transition zone 61, so as to increase the flexibility of that portion of the catheter. As discussed in lines 11-21 of column 2 of Berg, Berg teaches away from increasing the flexibility of the distal section of the catheter, as this would increase the incidence of guide-catheter backout. Thus, to the extent Berg's disclosure may be said to suggest using a grooved portion on a catheter, that suggestion would have been limited to the portion of the catheter which attaches the distal section to the hub. Clearly, Wijeratne's outer body tube 22 does not attach the distal section to the hub 12. Instead, the outer body tube 22 is part of the distal section itself. Therefore, an ordinarily skilled artisan would not have been motivated by Berg to use a grooved portion on the outer body tube 22.

Moreover, assuming for the sake of discussion that some basis exists for the Official Action's modification of Wijeratne, amended Claim 1 would not have been obvious over Wijeratne in view of Berg. Wijeratne does not disclose an intermediate member connected to a front side of Wijeratne's transition tube 32 wherein Wijeratne's outer body tube 22 is connected to a front portion of the intermediate member, and wherein a proximal side aperture of Wijeratne's guidewire lumen 23 is formed in a side surface of the intermediate member. Also, the grooved portion of the modified Wijeratne catheter would not have a proximal end located toward a distal side of a proximal side aperture of Wijeratne's guidewire lumen 23.

Accordingly, amended Claim 1 is allowable over Wijeratne in view of Berg, and withdrawal of the rejection of Claim 1 as being unpatentable over Wijeratne in view of Berg is respectfully requested.

Claim 1 is also rejected as being unpatentable over Keith in view of Berg.

The Official Action takes the position that Keith's main shaft section 22 comprises a proximal shaft, the distal shaft section 66 comprises a distal shaft, the distal outlet 94 comprises a distal side aperture, and the proximal outlet 92 comprises a proximal side aperture. The Official Action further states that it would have been obvious to an ordinarily skilled artisan in view of Berg employ a grooved portion in Keith's distal shaft section 66. Applicants disagree with this modification.

Consistent with the above reasoning, to the extent Berg's disclosure may be said to suggest using a grooved portion on a catheter, that suggestion would have been limited to the portion of the catheter which attaches the distal section to the hub. Clearly, Keith's distal shaft section 66 does not attach the distal section to the hub. Instead, the distal shaft section 66 is part of the distal section itself. Therefore,

an ordinarily skilled artisan would not have been motivated by Berg to use a grooved portion on the distal shaft section 66.

Moreover, assuming for the sake of discussion that some basis exists for the Official Action's modification of Keith, amended Claim 1 is non-obvious over Kieth in view of Berg. Keith does not disclose an intermediate member connected to a front side of Keith's main shaft section 22 wherein Keith's distal shaft section 66 is connected to a front portion of the intermediate member, and wherein a proximal side aperture of Keith's guide wire lumen 52 is formed in a side surface of the intermediate member. Also, the grooved portion of the modified Keith catheter would not have a proximal end located toward a distal side of a proximal side aperture of Keith's guide wire lumen 52.

Accordingly, amended Claim 1 is allowable over Keith in view of Berg, and withdrawal of the rejection of Claim 1 as being unpatentable over Keith in view of Berg is respectfully requested.

Claim 25, the only other pending independent claim under rejection, is rejected as being unpatentable over Keith in view of Berg and design choice.

As amended, Claim 25 recites a catheter including a proximal shaft, an intermediate member connected to a front side of the proximal shaft, a distal shaft connected to a front portion of the intermediate member, a balloon connected at a front portion of the distal shaft, and a guide wire lumen for allowing a guide wire to be inserted through the guide wire lumen. The guide wire lumen includes a distal side aperture positioned on the distal side from a front end of the balloon and a proximal side aperture formed in a side surface of the intermediate member. A grooved portion having a groove is formed in a front portion of said distal shaft, and the

groove portion has a distal end located near a connection portion between the distal shaft and the balloon and a proximal end located toward a distal side of the proximal side aperture.

Amended Claim 25 is allowable over Keith in view of Berg and design choice in view of the above discussion. Accordingly, withdrawal of the rejection of Claim 25 as being unpatentable over Keith in view of Berg and design choice is respectfully requested.

New Claim 27 recites a catheter including a proximal shaft, an intermediate member connected to a front side of the proximal shaft, a distal shaft connected to a front portion of the intermediate member, a hub provided to a rear side of the proximal shaft, a balloon connected at a front portion of the distal shaft, an inner tube shaft coaxially extending through the distal shaft and the balloon and connected to a distal end of the balloon, a balloon lumen for communicating the hub to the inside of the balloon, and a guide wire lumen for allowing a guide wire to be inserted through the guide wire lumen. The guide wire lumen includes a distal side aperture positioned on the distal side from a front end of the balloon and a proximal side aperture formed in a side surface of the intermediate member. A grooved portion having a groove is formed in a front portion of the distal shaft, and the grooved portion has a distal end located near a connection portion between the distal shaft and the balloon and a proximal end located toward a distal side of the proximal side aperture.

New Claim 28 recites a catheter including a proximal shaft, an intermediate member connected to a front side of the proximal shaft, a distal shaft connected to a front portion of the intermediate member and consisting of a single layer, a hub

provided to a rear side of the proximal shaft, a balloon connected at a front portion of the distal shaft, an inner tube shaft coaxially extending through the distal shaft and the balloon and connected to a distal end of the balloon, a balloon lumen for communicating the hub to the inside of the balloon, and a guide wire lumen for allowing a guide wire to be inserted through the guide wire lumen. The guide wire lumen includes a distal side aperture positioned on the distal side from a front end of the balloon and a proximal side aperture formed in a side surface of the intermediate member. A grooved portion having a groove is formed in a front portion of the distal shaft, and the grooved portion has a distal end located near a connection portion between the distal shaft and the balloon and a proximal end located toward a distal side of the proximal side aperture.

New Claim 29 recites a catheter including a proximal shaft, an intermediate member connected to a front side of the proximal shaft, a distal shaft connected to a front portion of the intermediate member, a hub provided to a rear side of the proximal shaft, a balloon connected at a front portion of the distal shaft, an inner tube shaft coaxially extending through the distal shaft and the balloon and connected to a distal end of the balloon, a balloon lumen for communicating the hub to the inside of the balloon, and a guide wire lumen for allowing a guide wire to be inserted through the guide wire lumen. The guide wire lumen includes a distal side aperture positioned on the distal side from a front end of the balloon and a proximal side aperture formed in a side surface of the intermediate member. A front portion, positioned on a rear side from the balloon, of the distal shaft is configured as a grooved portion having a groove, a rear portion of the distal shaft is free of grooves,

and the grooved portion is provided at a portion adjacent to the balloon and extends toward a proximal side of the distal shaft.

New Claims 27, 28 and 29 are believed to each be allowable over Wijeratne in view of Berg and Keith in view of Berg. For example, Claims 27 and 28 recite a grooved portion having a groove formed in a front portion of the distal shaft, wherein the grooved portion has a distal end located near a connection portion between the distal shaft and the balloon and a proximal end located toward a distal side of the proximal side aperture, and Claim 29 recites a front portion of the distal shaft configured as a grooved portion having a groove, a rear portion of the distal shaft which is free of grooves, and that the grooved portion is provided at a portion adjacent to the balloon and extends toward a proximal side of the distal shaft

The dependent claims are allowable at least by virtue of their dependence from allowable independent claims. Thus, a detailed discussion of the additional distinguishing features recited in the dependent claims is not set forth at this time.

Early and favorable action with respect to this application is respectfully requested.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful

in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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